Winter 2019 - COMP 520 GoLite Project Milestone 1

Group 7
Zhuocheng Du - 260673297
Anqi Li - 260654876
Jackson Wang - 260619653

Design decisions:

- **Scanner:**
  - Comments are ignored by the scanner
- **Parser:**
  - Raw strings are translated and stored as interpreted string
  - Runes are saved as strings //TODO change this
  - All expressions can be parsed as expression statement, a weeding phase will be used to determine their eligibility
- **AST:**
  - Similar structure to the official specification
  - Attempted to reduce the number of nodes by not having separated expression-list node, instead a pointer is used
- **Pretty printer:**
  - The pretty printer does not print any optional semicolon
  - Indentation are printed as 4 whitespaces

Weeding:

- Package: reject a blank identifier as the package name
- Import: reject a blank identifier as the name of a imported file
- Type: reject a blank identifier as the name of a type
- Expression:
  - Take directive from weedStatement function about whether blank identifiers shall be rejected
- Statements:
  - Continue statement: reject if it is not inside a for statement
  - Break statement: reject if it is not inside a for statement or switch statement
  - If statement: reject a blank identifier as the condition
  - Print/Println statement: reject a blank identifier as the expression to print
  - Expression statement: reject a blank identifier as an expression statement; Also, some invalid expression statement, notably most expression that are not a function, have to be weeded out in this phase.
  - Assignment statement: reject if the length of its left-hand side does not equal that of its right-hand side; reject if a blank identifier appear on its right-hand side

    - Short variable declaration statement: reject if the length of its left-hand side does not equal that of its right-hand side; reject a blank identifier as a variable name
    - For statement: reject a blank identifier in the loop condition or for clause
    - Switch statement: reject a blank identifier as the switch expression; reject multiple “default” cases

Implementation tools:
We chose C/flex/bison as our toolchain, because these are the technologies that each group member is familiar with. This makes it easier for everyone to contribute to the project and saves us the time needed to learn new technologies. We believe that this can facilitate the development process and will allow us to complete the project within our time and efforts budget.

Work distribution:
We collaborate with one another during development by using Visual Studio Code with VS Live Share extension. In this way, everyone can access, modify, and execute the source code at the same time, which highly improves our development efficiency. At the end of each collaboration session, one of the team members commits the changes to GitHub for version control.

- Initial setup: Jackson Wang
- Version control: Jackson Wang
- Scanner/parser/AST/pretty printer implementation: Zhuocheng Du, Anqi Li, Jackson Wang
- Report: Zhuocheng Du, Anqi Li